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## EMPIRICAL APPLICATION OF THE GREEN HOTEL RATING

*The paper is based on the general conceptual framework of the green hotel rating system Shieh et al. proposed in 2012. We apply this conceptual framework to compare 7 well-known green hotel rating programs, including Green Leaf in North America; Green Seal in the US, Canada's Green Key, the EU's Eco-label and Green Key, Britain's Green Tourism Business Scheme, China's Green Hotel Standard, and LEED. This study finds all 7 green hotel rating programs to date are voluntary, meaning that they are not imposed on tourism businesses by the government or in any other way. Besides, almost all of these 7 rating programs currently have no clear criteria for evaluation to emphasize the ecological conservation dimension, especially in non-ionizing radiation (environmental protection); wildlife conservation, wildlife habitat protection and biodiversity (natural conservation); and ecological engineering method (building infrastructure).*

*Keywords:* green hotel; green hotel rating program; conceptual framework; environmental protection; natural conservation; building infrastructure.

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## ЕМПІРИЧНЕ ЗАСТОСУВАННЯ РЕЙТИНГУ ЕКО-ГОТЕЛІВ

*У статті використано загальну систему ранжування еко-готелів, запропоновану дослідниками Шіє та ін. у 2012 році. Цю концепцію застосовано для порівняння 7 відомих програм з розвитку еко-готелів: Green Leaf (Півн. Америка), Green Seal (США), Green Key (Канада), Eco-label і Green Key (ЄС), Green Tourism Business Scheme (Британія), Green Hotel Standard (Китай) і LEED. Показано, що всі 7 рейтингових програм на сьогоднішній день є добровільними, а це означає, що уряд або інші органи не зобов'язують готелі брати в них участь. Крім того, майже у всіх програмах в даний час немає чітких критеріїв оцінювання екологічності, особливо щодо неіонізуючих випромінювань (захист довкілля); збереження дикої природи, охорони тваринного світу і біорізноманітності (збереження природи) і екобудівництва (інфраструктура).*

*Ключові слова:* еко-готель; програма ранжування еко-готелів; концептуальна схема; охорона довкілля; збереження природи, інфраструктура будівництва.

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## ЭМПИРИЧЕСКОЕ ПРИМЕНЕНИЕ РЕЙТИНГА ЭКО-ГОСТИНИЦ

*В статье использована общая система ранжирования эко-гостиниц, предложенная исследователями Шие и др. в 2012 году. Эта концепция применена для сравнения 7 известных программ по развитию эко-гостиниц: Green Leaf (Сев. Америка), Green Seal (США), Green Key (Канада), Eco-label и Green Key (ЕС), Green Tourism Business Scheme (Британия), Green Hotel Standard (Китай) и LEED. Показано, что все 7 рейтинговых программ на сегодняшний день являются добровольными, а это означает, что правительство или другие органы не обязывают гостиницы в них участвовать. Кроме того, почти во всех программах в настоящее время нет четких критериев для оценки экологичности, особенно в части неионизирующих излучений (защита окружающей среды); сохранения дикой природы, охраны животного мира и биоразнообразия (сохранение природы) и экостроительства (инфраструктура).*

*Ключевые слова:* эко-отель; программа ранжирования эко-гостиниц; концептуальная

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*схема; охрана окружающей среды; сохранение природы, инфраструктура строительства.*

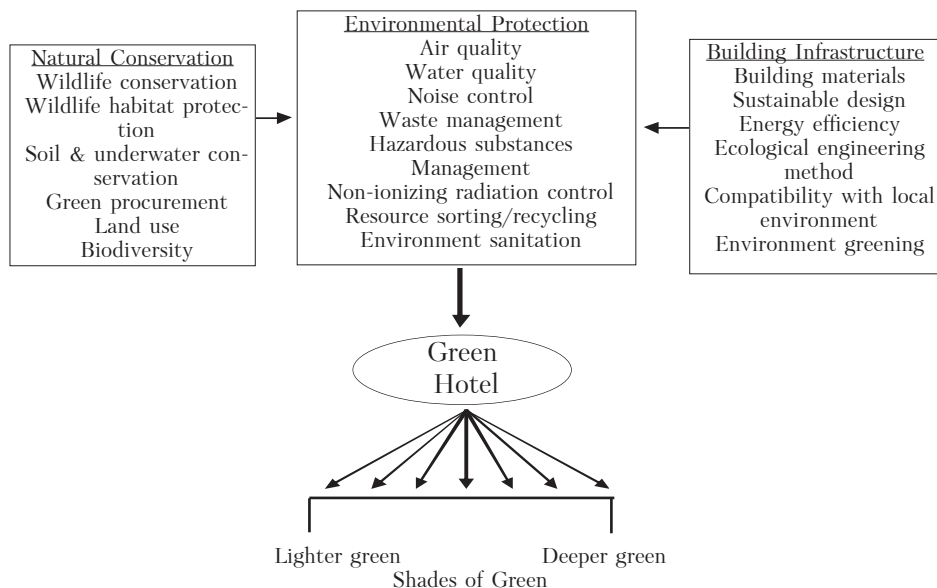
**Introduction.** As one of the largest industries in the world, tourism has positive and negative socioeconomic, cultural and environmental impacts. Over the past 15 years, a lot of tourism certification programs have sprung up worldwide in an effort to recognize tourism businesses which truly work to reduce negative impacts by using sustainable practices. Over the past 3 decades different green hotel rating programs don't actually comply with generally accepted concepts. In 2001 it was estimated that there were around 60 'green' hotel rating programs in the world (Honey, 2002; WTO, 2002). This number varies, however, depending on how widely or narrowly the term 'green hotel rating program' is defined. Despite this great variety, the number of rating programs dealing with some aspects of the tourism industry appears to be growing and in 2007 it was estimated that as many as 80 programs existed (Solimar, 2007). Worldwide green hotel rating programs, now numbering more than 80, have become a popular tool providing recognition to tourism businesses which meet a determined set of program requirements. Certification as defined in the tourism industry is the process by which a logo or a seal is awarded to those who meet or exceed a set of criteria that have been set by the certification body (Honey; 2002). This worldwide proliferation of green hotel rating programs, however, has led to consumer confusion, lack of brand recognition and widely varying standards.

Although different green hotel rating systems have been applied in the hotel industry for decades starting from Green Seal 1989, there are lots of studies discussing relative issues on green hotels but not green hotel ratings. Some countries or regions around the world have developed different appraisal systems for green hotels (Shieh et al., 2012). The lack of methods to enforce sustainable management and regulate green messages in tourism has led to an increasing number of voluntary initiatives in the form of codes of conduct, manuals, awards, and ecolabels. There are too many ecolabels, with different meanings, criteria, geographical scope, confusing messages, limited expertise, and expensive systems, which only partly meet the requirements of compliance assessment process (Font, 2002).

The term "green" is alternatively known as eco-friendly', "environmentally friendly", or "sustainable" (Han et al., 2009; Pizam, 2009). Therefore, there are various names for "green hotels", such as "green hotels", "green lodging", "eco-hotels", "eco-lodges", or "sustainable tourism" and so on. Because people have different focuses for their environmental actions, the name often reflects the focus of each specific hotel. The definitions of a green hotel only differ in small details. Shieh et al.'s (2012) general conceptual framework serves as the basis for the present research. In this conceptual framework, they consider "green hotel" and related works in the literature are classified into 3 major categories: environmental protection, natural conservation, and building infrastructure, and comprise a total of 20 attributes. They suggest the main dimensions of "green" as presented in Figure 1.

*Figure 1. General conceptual framework of the*

## green hotel rating system as proposed by Shieh et al. (2012)

**A comparison**

**of 7 green hotel rating programs.** This study's samples were chosen among the green hotel rating programs operating in the world. We focus on rating programs because these 7 are fairly well-known and have to be outlined in the literature. Although these case studies are not necessarily representative of all the rating programs, their characteristics represent the diversity of procedural aspects and criteria present worldwide. A comparison is provided between the general conceptual frameworks for these 7 well-known green hotel rating programs to best practice standards in the industry. Additionally, a detailed analysis is conducted on each of the program's criteria in order to investigate the extent to which these green hotel rating programs embrace the triple bottom line principles of environmental protection, natural conservation, and building infrastructure, as laid out in the green hotel rating system.

This study applies the general conceptual framework of the green hotel rating system proposed by Shieh et al. (2012) to compare 7 well-known green hotel rating programs (Table 1), including Green Leaf in North America, Green Seal in the US, Canada's Green Key, the EU's Ecolabel, Britain's Green Tourism Business Scheme, China's Green Hotel Standard and LEED illustrated as follow.

**1. Green Leaf.** The program began in 1998 to meet the lodging industry's aim to provide quality guest services, while minimizing their impact on the environment. A Canada-based label runs in association with Audubon International and is also called the Audubon Green Leaf Program or Audubon Green Leaf Eco-Rating Program - a Canadian certification program managed by TerraChoice in association with Audubon International. This program has just begun to expand into the United States. (Thailand's highly regarded, though unrelated, certification program is also called Green Leaf.)

The program is designed to recognize hotels, motels, and resorts that are committed to improving their fiscal and environmental performances to provide the assurance that audited lodging facilities meet environmental best practice standards. Through a comprehensive and credible method for assessing the extent of the environmental measures undertaken, participating facilities can reduce environmentally-related costs and gain a marketing advantage. The program recognizes a property's achievements by awarding 1 to 5 green leaves: one is minimum of devising and committing to a set of environmental policies and principles, and 2 through 5 is for the results achieved by applying those principles. By earning a rating in the Audubon Green Leaf Program, hoteliers confirm their commitment to water quality, water conservation, waste minimization, resource conservation, and energy efficiency.

**2. Green Seal.** Green Seal, founded in 1989, is an independent non-profit organization based in Washington, D.C., dedicated to safeguarding the environment and transforming the marketplace by promoting manufacture, purchase, and use of environmentally responsible products and services. Green Seal provides science-based environmental certification standards that are credible, transparent, and essential in an increasingly educated and competitive marketplace. Green Seal has developed over 40 standards, certified more than 3300 products and services, and plays an important role in policy at national and international levels and transform the market towards the purchase and use of more sustainable products and services. The goal of Green Seal's standards is to identify sustainability leadership performance levels and practices for products and services. The process used to achieve this goal is based on the ISO standards for environmental labeling programs, in particular ISO 14020 and 14024 - international standards for ecolabelling.

Since 1995, Green Seal has partnered with the lodging industry to promote environmentally responsible products and practices within lodging properties. Green Seal's campaign on informing nearly 54,000 hotels and motels in the US focuses on how environmental efforts both improve the bottom line and benefit the environment. Green Seal works in a variety of ways with the lodging industry and its users, providing technical guidance, case studies, and certification of green hotels. Green Seal certifies lodging properties that meet the Green Seal environmental standard. To qualify for the certification, a hotel must demonstrate sustainable practices in the following areas: waste minimization, reuse & recycling; energy efficiency, conservation & management; management of fresh water resources; waste water management; hazardous substances management; and environmentally sensitive purchasing.

**3. Green Key.** The concept for the Green Key Eco-Rating Program came as a result of the United Nations Conference on Environment and Development, which was held in Rio de Janeiro in June 1992. As concern for the environment quickly grew in importance, the lodging industry recognized a need for a national program. During the mid-1990s the Hotel Association of Canada partnered with Environment Canada to begin addressing how hotels could improve their environmental performance. A working committee of hoteliers and environmental groups was formed and the result was the launch of the program in 1997. In late 2005 the program was updated, re-branded as the Green Key Eco-Rating program, and relaunched in its current on-line format. This Program is currently active in the United States, Canada, and the EU.

The Green Key Eco-Rating Program is a graduated rating system designed to recognize hotels, motels, and resorts that are committed to improving their environmental and fiscal performance. The program assesses 5 main operational areas of a property including corporate environmental management; food & beverage operations; housekeeping; conference & meeting facilities; and engineering. It covers 9 areas of sustainable practices including energy conservation; water conservation; solid waste management; hazardous waste management; indoor air quality; community outreach; building infrastructure; land use; and environmental management.

The Green Key Eco-Rating Program is a voluntary, self-administered audit designed to assist a hotel in determining its current environmental footprint and is also unique in that it is administered entirely online. Based on the results of a comprehensive environmental audit, hoteliers are provided with guidance on how to reduce environmental impacts and operating costs through reduced utility consumption, employee training, and supply chain management.

**4. Ecolabel.** Ecolabeling schemes, environmental certifications and awards, and environmental quality assurance and evaluation systems are currently utilized as instrumental tools by tourism industry in developed nations for protecting natural environment on which the industry depends (Morgan, 1999) and for setting the course for environmentally compatible development of the tourism industry (Sasidharana et al., 2002).

The European ecolabel scheme is Europe's official environmental label and is a part of a broader action plan on sustainable consumption and production and sustainable industrial policy adopted by the Commission on 16, July 2008. A green hotel is relative to tourist accommodation services. The label is certified by an independent organization recognized throughout the EU25 and Norway, Liechtenstein, and Iceland. The ecolabeling board includes representatives such as industry, environment protection groups, and consumer organizations. It is a voluntary instrument designed for businesses wishing to communicate to consumers about the environmental excellence of their products and their commitment to sustainable development by producing products or providing services that are more environmentally friendly.

The objectives of the criteria for tourist accommodation are to limit the main environmental impacts from 3 phases of the service's life-cycle, i.e., purchasing, provision of a service, and waste through: limiting energy consumption; limiting water consumption; limiting waste production; favoring the use of renewable resources and substances which are less hazardous to the environment; and promoting environmental communication and education. Over the past 10 years, the EU ecolabel is a rapidly growing brand and the "flower" has become a Europe-wide symbol for products, providing simple and accurate guidance to consumers. All the products bearing the "flower" have been checked by independent bodies for complying with strict ecological and performance criteria. An ecolabel in the trade sense is a certification of a particular level of environmental performance in the production of an internationally tradable product (Buckley, 2002). Ecolabels have emerged as one of the main tools of green marketing (Rex and Baumann, 2007). Increased environmental requirements and awareness and the need for environmentally friendly service providers to stand out from the crowd are all in favor of using the European ecolabel. By far the

greatest proliferation of tourism ecolabels is in Europe, particularly in and around Germany, but there is also a global label first started by the World Travel and Tourism Council. Ecolabels have recently attracted the attention of multilateral tourism and multilateral environmental organizations (Buckley, 2002).

Ecolabel is a rigorous new program that certifies hotels throughout the European Union's 25 member countries. 51 hotels currently participate, with more on the way. Ecolabel was originally created to reward tourist accommodation services and tourists that respect the environment. Ecolabel signals an environmentally good performance as it is an added quality value when consumers are choosing a resort and presents a unique opportunity to satisfy customers' expectations. Enterprises bearing the logo have officially been distinguished as the most environmentally friendly in their area.

**5. Green Tourism Business Scheme (GTBS).** The Green Tourism Business Scheme (GTBS) has been running since 1997 and with over 1400 members across the whole of the UK, it is the largest and most established scheme of its type in the world. Originally developed in partnership with "Visit Scotland", the GTBS is now the only certification scheme validated by "Visit Britain", through the International Centre for Responsible Tourism (ICRT). Font (2002) points out that GTBS provides excellent value for money to a wide range of tourism firms with first-class environmental advice and auditing. Satisfaction rates of certified firms are very high and dropout rates low, both for the smallest of tourism firms and increasing at the corporate level.

The scheme was developed by Shetland Environmental Agency (SEA Ltd.), which holds the primary copyright and intellectual property rights to all the materials, criteria, workbooks, audit and report forms etc. SEA Ltd. provides technical and management services to the GTBS. Green Business UK Ltd., a not-for-profit organization established in 2001, is the sole authorized advisory and auditing company for the GTBS to deliver the GTBS and provide auditing, advisory and membership services. The aim of the GTBS criteria is to offer guidelines to tourism businesses on how to make their operations more sustainable while still delivering a high quality service. When developing the criteria, consideration has been given to a wide range of social and environmental factors, as well as up-to-date technological developments. Application packs and criteria will only be sent directly to businesses and not via a third party or advisor. The members of the GTBS are given a logo like Bronze, Silver, or Gold indicating their award level.

Because every business is different, flexibility has been built into the GTBS criteria. There are over 150 individual measures in the criteria, which focus on 10 different areas including management and marketing; social involvement and communication; energy; water; purchasing; waste; transport; natural and cultural heritage; and innovation.

**6. China's Green Hotel Standard.** In China, a green hotel refers to a hotel that has the concept of sustainable development, integrates environmental management with hotel management, leverages the use of environmental protection, health, and safety concepts, insists on green management and cleaner production, prompts green consumption, and protects the ecological environment and rational use of resources. The core concept is providing green rooms and green food, meeting the environmental protection requirements and being beneficial to human health for customers, enhancing environmental protection and the rational use of resources in the produc-

tion process. According to National Standard of the People's Republic of China and Green Hotel Rating Criteria released by State Economic and Trade Commission in 2003, China green hotel assessment is voluntary. There are 3 major characteristics in China's Green Hotel Standard: safety, health, and environmental protection. Safety is the basic feature of a green hotel, and its main concern is public safety and food safety in the hotel industry. Health means providing services and products that are beneficial to public and for physical and mental health of consumers in the hotel industry. Environment mainly refers to the hotels that are trying to reduce environmental pollution, save energy, and achieve the maximization of resource utilization. Assessment criteria focus on 8 different areas including green management, water conservation, energy management, environmental protection, waste management, green building, green food, and social and economic benefits. According to different degrees of efforts made by hotels in green services and environmental protection, green hotels are classified into 5 grades. The representative logo is a symbol of ginkgo biloba with Chinese characteristics.

**7. LEED.** LEED is the acronym for “Leadership in Energy and Environmental Design”, launched in March 2000, and was developed by the US Green Building Council (USGBC). LEED is an internationally recognized green building certification system providing building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions, as well as third-party verification that a building was designed and built using strategies aimed at improving performance across all the metrics. LEED is flexible enough to apply to all building types and works throughout the building lifecycle. LEED promotes a whole-building approach to sustainability by recognizing performance in 5 key areas of human and environmental health: sustainable site development (26 points), water saving (10 points), energy efficiency (35 points), materials selection (14 points) and indoor environmental quality (15 points). Buildings can qualify for 4 levels of certification, based on the number of points achieved in the 100-point scale: Certified (40–49 points), Silver (50–59 points), Gold (60–79 points), and Platinum (80 points or higher).

Efforts to green the building industry are strongly linked to performance metrics such as LEED. However, despite the importance of climate impact as a driver of green building choices, such standards typically address a basket of poorly quantified green attributes and, when they do address energy, they focus on conservation rather than carbon emissions so that they do not provide an efficient guide to managing the climate impact of building (Montanya and Keith, 2011). LEED is the most widely accepted benchmark for green buildings among North American developers and institutions, affecting design choices, suppliers of building products, and ultimately billions of dollars in construction. Butler (2008) points out that consumers will demand that hotels construct and operate their buildings in accordance with LEED standards. Governments have begun to encourage and promote reduced energy use and emissions. Previous studies show that the cost of building according to LEED standards is not higher than conventional approaches, besides, those buildings are healthier for occupants and less expensive to operate. For saving energy, constructing green hotels is much better than to retrofit buildings.

**Table 1. Comparison of Green Hotel Rating Systems**

Rating System	Green Leaf	Green Seal	Green Key
Countries/Regions	North America	U.S.	Canada, EU
Organization System Analyzed	TerraChoice & Audubon International	Green Seal	Hotel Association of Canada & Environment Canada
Participation	Voluntary	Voluntary	Voluntary
Grade Sign	Leaf	Color	Key
Level	5	3	5
Beginning	1998	1989	1997/2005

Rating System	Eco-label	GTBS*	GHS**	LEED***
Countries/Regions	EU	UK	China	U.S.
Organization System Analyzed	European Eco-labeling Board (EUEB)	Visit Britain / International Centre for Responsible Tourism (ICRT)	China Hotel Association	U.S. Green Building Council (USGBC)
Participation	Voluntary	Voluntary	Voluntary	Voluntary
Grade Sign	Flower	Color	Ginkgo biloba	Color
Level	None	3	5	4
Beginning	1992	1997	2003	2000

**An application of Shieh et al.'s general conceptual framework.** In this study we used the general conceptual framework proposed by Shieh et al. (2012) to compare the criteria of these 7 well-known green hotel rating programs, as given by their various bulletins and forms (Tables 2-4).

**Table 2. Comparison of Green Hotel Rating Systems - Environmental Protection**

Rating System	Green Leaf	Green Seal	Green Key	Eco-label	GTBS	GHS	LEED
Air Quality			V	V	V		V
Water Quality	V	V	V	V	V	V	V
Noise Control					V		V
Waste Management	V	V	V	V		V	V
Hazardous Substances Management		V	V	V			V
Non-ionizing Radiation Control							V
Resource Sorting / Recycling	V	V					V
Environment Sanitation				V		V	V

**Table 3. Comparison of Green Hotel Rating Systems - Natural Conservation**

Rating System	Green Leaf	Green Seal	Green Key	Eco-label	GTBS	GHS	LEED
Wildlife Conservation							
Wildlife Habitat Protection							



The End of Table 3

Soil & Underwater Conservation	V	V					V
Green Procurement		V			V	V	V
Land Use			V		V		V
Biodiversity							V

Table 4. Comparison of Green Hotel Rating Systems - Building Infrastructure

Rating System	Green Leaf	Green Seal	Green Key	Eco-label	GTBS	GHS	LEED
Building Materials			V				V
Sustainable Design			V				V
Energy Efficiency	V	V	V	V	V	V	V
Ecological Engineering Method							V
Compatibility with Local Environment					V		V
Environment Greening			V	V		V	V

**Discussion and conclusions.** It is worth mentioning that these 7 green hotel rating programs are mostly sponsored and certified by NGOs or self-disciplined organizations. Because a NGO or self-disciplined organization plays an impartial third party role and is more in line with the spirit of being voluntary and self-disciplined, other countries or areas should consider this approach as well when they implement their own ratings. This finding is not consistent with the Font and Sallows's study that most tourism certification programs are operated by governments in developed countries and by NGOs in developing countries (Font and Sallows, 2002). All green hotel rating programs to date are voluntary, meaning they are not imposed on tourism businesses by governments or other organizations. Because the tourism industry is so diverse, offers both products and services, and has such a far-reaching supply chain, certification across the industry is not an easy task (Honey, 2001).

The finding demonstrates that almost all 7 green hotel rating programs currently have no clear criteria for evaluation to emphasize the ecological conservation dimension, especially in non-ionizing radiation (environmental protection); wildlife conservation, wildlife habitat protection and biodiversity (natural conservation); and ecological engineering method (building infrastructure). All of them are not mentioned in the 7 well-known green hotel rating programs. Although these 7 programs are strong in environmental protection, however, not enough criteria have been proposed for evaluating ecological conservation. The analysis of these 7 green hotel rating programs indicates potential areas for improvement, if one accepts the environmentally-friendly concept in a broad sense. In a broad sense, more criteria regarding the dimensions of natural conservation and building infrastructure should be added to the green hotel rating system to evaluate hotels more completely and effectively.

As for Shieh et al. (2012), the contribution of their general conceptual framework in particular is to provide a foundation for future research and to provide practitioners with guidance on the roles that different dimensions may play in achieving

sustainability. Their general conceptual framework can be used to underpin future research into the green hotel rating system in other countries/regions and helps advance our knowledge of the green hotel rating system. Examining green hotel rating systems developed for many years can contribute to the establishment of a green rating system for hotels in other countries or areas in the future. Surveys should also be conducted on an ongoing basis to clarify and incorporate both natural ecological conservation and building infrastructure viewpoints and to keep green hotel rating systems updated. The findings will help develop a more general and completely green hotel rating system that is trusted and useful to consumers and can be considered a guideline for hoteliers and authorities (Shieh et al., 2012).

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Стаття надійшла до редакції 20.01.12